

The Santa Fe Model: Music, the Brain, Medicine, and Wellness—A Scientific Dialogue Exemplifying Integrative Forums for Critical Topics

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Abstract

Construction and development of a conference involving music and medicine has enormous potential on many counts. This article describes the intention of integrating medical music practices through direct event-conference thinking and through performance medium. This is a growing format that has important implications for expanding the role of the arts in health care. The Santa Fe Chamber Music Festival, the University of New Mexico Cancer Center, and Gabrielle's Angels Foundation for Cancer Research will soon present "Music, the Brain, Medicine, and Wellness: A Scientific Dialogue." This scientific symposium occurring from August 4 to 6, 2012, in Santa Fe, New Mexico, builds upon the knowledge of the state of the science and its impact of music on the developing brain, cognition, language, memory, and emotion. Music's capacity to promote healing in patients with serious medical conditions including cancer, neurologic diseases, and developmental disorders as well as its influence on the well-being of individuals and their communities is critical to the expansive thinking in the integration of music and medicine.

Keywords

Music Medicine Conference, Medical Arts Symposium, music and medicine, education

While tremendous scientific and therapeutic advances have been achieved in our knowledge of the impact of music on the developing brain, learning, cognition, memory, emotion, and on the health and well-being of an individual or a community, significant challenges remain and opportunities abound. There is a critical need for interdisciplinary dialogue and cross-disciplinary scientific exchange and collaboration in the fields of neuroscience, the biomedical sciences, medicine, integrative medicine, the psychosocial sciences, and music therapy. Collaboration that can ensue directly between performance groups and foundations across domains of science and medicine within medical centers and universities provide critical interlinks that afford expansion of thinking and creativity.

The Santa Fe Chamber Music Festival, The University of New Mexico Cancer Center, and Gabrielle's Angels Foundation for Cancer Research will present "Music, the Brain, Medicine, and Wellness: A Scientific Dialogue" (MusicAndTheBrainSantaFe.org), August 4 to 6, 2012, in Santa Fe, New Mexico. The Symposium will launch an intensive dialogue to define the state of the science, to identify the most important questions and opportunities for future research, and to promote cross-disciplinary exchange and collaboration among scientists, physicians, health care professionals, music therapists, and musicians.

Conferences such as the Santa Fe Symposium that bring together world-renowned musicians with leading scientists,

physicians, health care professionals, and therapists who are engaged in state-of-the-art research assessing the role and impact of music on the developing brain, cognition, learning, memory, language, and emotion, as well as the application of music to health, well-being, and treatment of disease are critical to the ongoing growth of music and medicine. Attendees that include biomedical research scientists and physicians, with musicians, music therapists, and health care professionals, together with members of the community at large provide a most nourishing field for growth and opportunity.

Areas of Investigation

The overall goal of the Symposium is to bring leading scientists, physicians, health care professionals, and therapists to Santa Fe to interface with internationally renowned musicians

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and to present the cutting-edge research and the state of the science in 3 areas of investigation:

1. How the development of the brain in early childhood and how cognitive development, language, emotion, and memory are influenced by various forms of music.
2. How music can be used to promote wellness and healing in patients with serious medical conditions including cancer, neurologic, developmental and cognitive disorders such as autism, and other chronic health conditions.
3. How music promotes well-being in an individual and a community.

The Importance of Dialogue

Conferences often tend to limit their representation to a single group, and opportunities to dialogue across domains or disciplines are missed due to homogeneous topics and/or sponsorships. The interdisciplinarity of the Santa Fe Symposium is meant to advance rigorous scientific dialogue that opens point/counterpoint exchanges. The Symposium's Scientific Advisory Committee has developed a format that will feature presentations by scientists, physicians, and therapists in the state of the science in their respective fields. This format, followed by an intensive dialogue and exchange with additional speakers, panelists, and the audience, will afford critical integration. In keeping with the musical emphasis, each session will be organized in trios; from basic science, to translation to disease, to the status of clinical interventions.

The symposium is meant to build upon the growing pockets of conferences that link music and medicine through scientific integration of physiology, music, and experience. Recent symposia supported by music arts and science integration efforts include the Summer International Association for Music and Medicine in Thailand, last year's International Society for Music Medicine conference in Minnesota, and the upcoming 4th Mozart and Science conference that will occur in Vienna next year.

Music and Medicine readers might observe that the reach of clinical activities between performing artists and doctors ensure development between therapists, doctors, and musicians. "Music, the Brain, Medicine, and Wellness" in Santa Fe will provide many opportunities for interactions and demonstrative projects between scientists and musicians, as well as forums and concerts open to the public and lay audiences. Interweaving music listening with scientific forums not only can lengthen attention span but additionally provides an experience of creativity and clinical thinking indicative of an integrative experience.

Symposium: Interweaving Lectures and Concerts

The word symposium is derived from Greek origins and literally translates into "feast." Having topics of many kinds has the

potential to reach a variety of audiences that can be important for incentives such as program initiatives and future foundation planning. The Santa Fe Symposium features more than 35 presentations and discussions, including 3 concerts, 1 with a public lecture and 2 with symposium faculty introductions. General presentation themes are organized into sessions, which include:

- "What is Music? How do Harmony, Melody, Rhythm, and Tempo Impact Brain Function, Memory, and Emotion?"
- "What is Music? How Do Harmony, Melody, Rhythm, and Tempo Impact Auditory Perception, Cognitive Development, Behavior, and Language?"
- "How Music Can Be Used in Therapeutic Intervention?: Aphasia and Autism"
- "Music, the Brain, Motor Function, and Therapeutic Intervention: What is the State of the Science in Neurologic Disorders and Stroke?"
- "Music, Motor Function, and Therapeutic Intervention: What is the State of the Science in Cancer, Chronic Disease, and Terminally Ill Patients?" and
- "Music and Well-Being: From the Individual to the Community".

Featured lecture demonstrations include titles such as "When Music Sings, the Brain Listens and the Heart Modulates," Kamal R. Chémali, MD (Sentara Center for Music and Medicine) with Prisca Benoit, piano, and "Feeling the Beat: Are Humans Unique," Ani Patel, PhD (The Neurosciences Institute). Dr Patel will discuss musical beat perception and why we move to the music. He will explain how this seemingly simple ability, which is at the foundation of much of the world's musical rhythms, actually requires specialized brain circuits that are found only in humans and a few other species. He will also discuss how this research is enhancing our ability to treat patients with Parkinson's disease and other neurologic and movement disorders. David Huron, PhD (The Center for Cognitive Science and the School of Music, Ohio State University) will present "Music and Emotion: Got a Feeling? What Precisely Are Music's Mental Attractions?" Dr Huron's early research centered on the perceptual foundations of melody and voice leading, and he has also investigated sensory dissonance, musical similarity, and musical expectation. His work on expectation is chronicled in the book *Sweet Anticipation: Music and the Psychology of Expectation*. His current research focuses on understanding how music evokes emotion. Dr Huron emphasizes cross-cultural comparisons in pursuing his research, involving the analysis of Native American, Chinese, Japanese, Hasidic, Balinese, Korean, and sub-Saharan African music. This is an underresearched topic.

Symposium presentations include music and memory; music and rhythm; music, emotion, and behavior; music, cognitive function, and language; music and the developing brain; music, singing, and intervention: aphasia, autism; music and intervention: autism; music, movement, and motor control; music and stroke intervention; music and the autonomic nervous system; music therapy: stroke, Parkinson's disease, Alzheimer's disease, and degenerative disorders; music intervention in cancer

patients; music in everyday life; music interventions for wellness; and music strategies to manage stress and enhance quality of life.

The distinguished symposium faculty are Barrie Cassileth, PhD (Memorial Sloan Kettering Cancer Center); Kamal R. Chémali, MD (Sentara Center for Music and Medicine); Suzanne Hanser, EdD, MT (Berklee College of Music); Pamela Heaton, PhD (University of London); David Huron, PhD (The Center for Cognitive Science and the School of Music, Ohio State University); Petr Janata, PhD (University of California at Davis); Ani Patel, PhD (The Neurosciences Institute); Isabelle Peretz, PhD (International Laboratory for Brain, Music, and Sound Research, The Montréal Neurologic Institute, McGill University); Michael Thaut, PhD (The Center for Biomedical Research in Music, Colorado State University); Concetta Tomaino, DA, LCAT, MT-BC (Institute for Music and Neurologic Function, Beth Abraham Family of Health Services); Laurel Trainor, PhD (McMaster University); Cheryl Willman, MD (University of New Mexico Cancer Center); and Robert Zatorre, PhD (International Laboratory for Brain, Music, and Sound Research, The Montréal Neurologic Institute, McGill University).

The Santa Fe Chamber Music Festival musicians participating in the Symposium include Marc Neikrug, Artistic Director, Santa Fe Chamber Music Festival; Alan Gilbert, Music Director, New York Philharmonic and 2012 Santa Fe Chamber Music Festival Artist-in-Residence; Inon Barnatan, piano, international soloist/chamber artist; Tara Helen O'Connor, flute, international soloist/chamber artist; Michael Rusinek, Principal Clarinet, Pittsburgh Symphony; Harvey de Souza, violin, Academy of St Martin in the Fields; and Arnold Steinhardt, violin, member of the former Guarneri Quartet.

Festival concerts with symposium faculty introductions include J. S. Bach, Piano Concertos Nos. 1, 4, 5, and 7; Mozart, Piano Quartet in E-flat Major, K. 493; Schoenberg, Chamber Symphony No. 1 in E Major, Op. 9; and Mendelssohn, Octet in E-flat Major, Op. 20. Members of the legendary former Guarneri Quartet will be reuniting for the performance on August 6. Symposium opening remarks will be provided by Josephine P. Briggs, MD, Director, National Center for Complementary and Alternative Medicine, National Institutes of Health and Jeffrey D. White, MD, Director, Office of Cancer Complementary and Alternative Medicine, National Cancer Institute, National Institutes of Health.

Our Promising Emerging Field

Kamal R. Chémali, MD, neurologist; Director, Sentara Neuro-muscular and Autonomic Programs; Director, Sentara Center for Music and Medicine, Norfolk, Virginia; and member of the Scientific Organizing Committee for the Symposium provided a guest editorial in *Music and Medicine*, emphasizing the importance of bringing together musicians and scientists for the advancement of this promising emerging field.

There are different ways of spreading the word and achieving the important education mission of a Music and

Medicine program of a hospital. Two effective models are concert-symposia and concert-lectures. The concert-symposia are meetings that include neuroscientists and musicians. The scientists expose the latest research and knowledge status of the topic of music and medicine, while the musicians perform at the beginning, within, or at the end of the symposium. This educational format presents the advantage of being extensive, blending science and music into one setting, and covering the topic in depth. However, it is elaborate and it requires significant funds to organize. When putting together a concert-symposium is not possible, or when a quick broad overview of the topic of music and medicine is requested, the format of concert-lecture is a very cost-effective alternative. An example from a personal experience is my collaboration with a concert pianist to present, in about 90 minutes, a program wherein the scientific explanations alternate with live music, hence incorporating the concert experience within the lecture. The purpose of this format is to review the scientific bases of music perception, demonstrate the effect of carefully selected music on the creation and the modulation of emotions, and potentially, with the appropriate technology, measure the changes produced by the music in specific physiological parameters of the listeners who comprise the audience.

Both types of educational activities target the medical, musical, and general public, and their content can be adapted to the type of audience. They can be organized in hospitals, universities, music schools, music festivals, and private venues.¹

In 2009, *Music and Medicine* published contents based on 2 educational events that occurred in New York City (NYC) which followed the integrative doctor, musician, and music therapist model. A Music & Health Symposium for Musicians, Performing Artists, and Medical Professionals organized by the Louis Armstrong Center for Music and Medicine at Beth Israel Medical Center and a Concert-Symposium on Music and the Brain organized by the Cleveland Clinic Arts and Medicine Institute at the Lincoln Center in NYC. The issue of *Music and Medicine* was guest edited by Kamal R. Chémali, MD.

It is the intention of the “Music, the Brain, Medicine, and Wellness” Santa Fe Symposium to exemplify and continue aforementioned models of presentation and that through this example of collaborative work, other groups and institutions will integrate thinking and provide venues, events, and planning for such symposia. There are numerous opportunities for clinical understanding, when we plan for science–music dialogue within the music experience. Our intention is to have a continued dialogue so that we “follow the lead and (that others) will be encouraged to bring together musicians and scientists for the advancement of our promising emerging field.”¹

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Reference

1. Chémali K. The science of music rehumanizing medicine: scientists and musicians discover the importance of their collaboration. *Music Med.* 2010;2(2):73-77.

Bio

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